

## **METHODS AND COMPOSITIONS FOR SYNTHESIS OF NUCLEIC ACID MOLECULES USING MULTIPLE RECOGNITION SITES**

### **ABSTRACT OF THE DISCLOSURE**

The present invention provides compositions and methods for recombinational cloning. The compositions include vectors having multiple recombination sites and/or multiple topoisomerase recognition sites. The methods permit the simultaneous cloning of two or more different nucleic acid molecules. In some embodiments the molecules are fused together while in other embodiments the molecules are inserted into distinct sites in a vector. The invention also generally provides for linking or joining through recombination a number of molecules and/or compounds (e.g., chemical compounds, drugs, proteins or peptides, lipids, nucleic acids, carbohydrates, etc.) which may be the same or different. The invention also provides host cells comprising nucleic acid molecules of the invention or prepared according to the methods of the invention, and also provides kits comprising the compositions, host cells and nucleic acid molecules of the invention, which may be used to synthesize nucleic acid molecules according to the methods of the invention.